

FIRE: Learning About Burning

Fuel and Flame

When you picture a forest fire in your mind, what does it look like? Do you think all fires look the same? You might be surprised to know they do not!

Helpful Fires – Fires have been an important part of the environment in Sequoia and Kings Canyon for thousands of years. Lightning started many fires every year. These fires burned the dead wood, or fuel, on the ground, and usually stayed small. Because they occurred regularly, the amount of fuel didn't build up.

Heat from these fires dried out pinecones and released seeds. Fires also helped create sunny openings in the forest where these seeds began growing, free from the shade of other trees.

Today, lightning fires still occur in the forest. In places where there is a natural amount of fuel, lightning fires are helpful like the fires of the past. In places where fuels have gotten thick, lightning fires become wildfires.

What is a wildfire? Why do fuels build up in the forest?

Wildfires – Fires that both happen unexpectedly and burn out of control are called wildfires. Wildfires can burn up buildings and hurt people. These fires may be started by lightning but are usually started by careless people. They come as a surprise and putting them out is dangerous, expensive work. Nobody wants a wildfire near their house or in the park.

Wildfires get big when there is a lot of fuel in our forests. For the last 100 years, people thought all fire was bad and put out every fire that they could. People did not understand that small fires prevent bigger ones by getting rid of fuel. Because there was less fire, the dead trees, sticks, and needles that fell on the ground didn't get cleaned up. Scientists say that today's forests have "heavy fuel levels."

Fixing the Fuels– Sequoia and Kings Canyon need fires to burn naturally like they used to, before fuels were too heavy. How do we do this?

With fire! In some areas, park fire crews light special fires called

prescribed burns. Prescribed burns are planned, so fire crews can light them only when weather conditions are right. Mild temperatures and calm winds help us to control the burns. Fire crews are trained to light the fires with a tool called a drip torch that squirts ignited diesel fuel onto the ground.

A prescribed burn is sort of like a doctor's prescription. It is a remedy for an unhealthy forest. Prescribed burns help to keep natural cycles working, and they reduce the chance of dangerous wildfires that can harm people and property. In wild places like national parks, fires are not just something that happens; they are an important part of the forest.

Read the article *Fuel and Flame*, then unscramble the following letters. HINT: This is the name given to a planned fire. These fires can help make a forest more healthy and make it safer to live near the woods.

SBRPREDEIC RNUB

Can you list two reasons why fire is important for some trees?



The Big Picture

We won't see "the big picture" about fire if we focus only on trees. The story is much larger than this. Everything in an ecosystem is connected. What happens to the forest affects all the living things there.

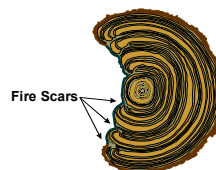
Animals live with fire, too. Some animals not only survive fires, but actually need them to sustain their food source and the habitat conditions they live in.

Fire stimulates new plant growth that gives animals a nutritious food source. Standing dead trees killed by fire, called snags, provide nest sites for woodpeckers, hawks and owls.

Some people wonder what happens to wildlife when fire comes near their homes. Large mammals usually have time to walk away from flames, birds fly away, and burrowing animals escape fires by crawling in holes underground.

Fires in the national parks do not benefit any one particular plant or animal. They help all parts of the system to exist together and function as a natural process. Fire is one of the best tools for keeping Sequoia & Kings Canyon National Parks wild and healthy!

Stories in Wood



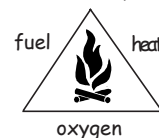
How did park managers figure out that fire has always been a part of Sequoia and Kings Canyon? They asked the trees!

Trees grow and add on a ring of wood just under their bark every year. If a fire is hot enough, its heat will penetrate the bark and burn these rings, leaving a scar. These scars show up as black, warped lines and they are easy to spot in a cross-section of a tree. Because of the scars, tree rings have a lot of information etched in their wood.

Tony Caprio is a scientist who studies trees and their annual rings. Tony says, "I like to study tree rings because they tell me stories about the past from before there were written records."

The fire scars found in giant sequoias tell about frequent fires that the trees survived. These 3,000-year-old trees have lived with fires every 5 to 15 years!

What makes a fire burn?



Imagine a 2,178 year old tree that experienced a fire every 11 years of its life. How many fire scars could we count?



one hundred ninety-eight

